broadband policies ultimately benefit consumers and whether any regulatory intervention is necessary.[451] The *Broadband Practices* proceeding is premised on an earlier Commission policy statement setting out the following principles to encourage broadband deployment, and to preserve and promote the open and interconnected nature of the public Internet to all consumers: (1) consumers are entitled to access the lawful Internet content of their choice; (2) consumers are entitled to run applications and use services of their choice, subject to the needs of law enforcement; (3) consumers are entitled to connect their choice of legal devices that do not harm the network; and (4) consumers are entitled to competition among network providers, application and service providers, and content providers.[452] The Skype Petition asks the Commission to: (a) declare that wireless services are subject to *Carterfone* principles that consumers have the right to attach any non-harmful device of their choosing to the network and run Internet applications of their choosing;[453] and (b) enforce those principles by initiating a rule making proceeding to determine whether wireless service providers are acting consistently with the *Carterfone* principles.[454]

195. Discussion. Although we generally prefer to rely on marketplace forces as the most efficient mechanism for fostering competition, we conclude that the 700 MHz spectrum provides an important opportunity to apply requirements for open platforms for devices and applications for the benefit of consumers, without unduly burdening existing services and markets. For the reasons described below, we determine that for one commercial spectrum block in the 700 MHz Band – the Upper 700 MHz Band C Block – we will require licensees to allow customers, device manufacturers, third-party application developers, and others to use or develop the devices and applications of their choice, subject to certain conditions, as described further below. We conclude, however, that it would not serve the public interest to mandate, at this time, requirements for open platforms for devices and applications for all unauctioned commercial 700 MHz spectrum, or to impose broader requirements, such as wholesale or interconnection requirements, for the C Block.

196. Rapid deployment and ubiquitous availability of broadband services across the country are among the Commission's most critical policy objectives. Broadband technology is a key driver of economic growth. The ability to share increasing amounts of information at greater speeds increases productivity, facilitates interstate commerce, and drives innovation. Perhaps most important, broadband is changing how we communicate with each other, how and where we work, how we educate our children, and how we entertain ourselves.

197. Wireless service is becoming an increasingly important platform for broadband access. Over the past few years, U.S. service providers have been moving beyond second-generation (2G) wireless network technologies to deploy next-generation, or third-generation (3G), network technologies. These technologies enable them to offer data services at higher data transfer speeds, and to offer mobile broadband services that provide for a variety of new capabilities and services, including broadband Internet access. As part of this evolution, "cell phones" are evolving into multi-media devices capable of surfing the web, sending e-mails, playing songs, taking pictures, playing games, and streaming video. As these devices become more sophisticated, consumers have more opportunities to access broadband services both at home and on the go.

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[451] *Broadband Practices*, 22 FCC Rcd at 7894.

[452] Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, CC Docket No. 02-33, *Policy Statement*, 20 FCC Rcd 14986, 14988 (2005) (*Broadband Policy Statement*).

[453] *Skype Petition* at 9-12; *see Use of the Carterfone Device in Message Toll Telephone Service*, 13 FCC 2d 420 (1968). Skype states that it offers consumers a way to reduce the costs of their conversations through VoIP and in so doing, stimulates demand for wireless networks. It also claims that it has mobile versions of its software that are optimized for wireless networks. Skype *Skype Petition* Reply Comments at 15-16.

[454] *Skype Petition* at 28-32.

198. Although wireless broadband services have great promise, we have become increasingly concerned that certain practices in the wireless industry may constrain consumer access to wireless broadband networks and limit the services and functionalities provided to consumers by these networks. In our *Wireless Broadband Classification Order*, we recognized that wireless IP-based multimedia content and services are typically sold through a service provider-branded, service provider-controlled portal.[455] We also noted that "in some cases, providers use filters to limit the web sites that a customer can access, and, in other cases, subscribers can enter any URL using a handset but the site may not be viewable due to software, processing, or other constraints of the device."[456] In contrast, wireless broadband Internet access services for laptop computers typically allow consumers to access the same applications that would be available had they chosen a cable or wireline broadband Internet access connection.

199. We are also concerned that wireless service providers appear to have required that equipment manufacturers disable certain capabilities in mobile devices, such as Wi-Fi capabilities. Technologically, mobile devices capable of accessing 3G wireless networks can also incorporate broadband Wi-Fi capabilities.[457] The inclusion of Wi-Fi capabilities in 3G wireless devices could improve the consumer experience by providing faster broadband data rates in the vicinity of Wi-Fi "hotspots" and reducing network congestion. Despite these technological possibilities and potential consumer advantages, wireless handsets with Wi-Fi capabilities have been largely unavailable in the United States for reasons that appear unrelated to reasonable network management or technological necessity.

200. The Commission generally relies on the competitive marketplace to deliver the benefits of choice, innovation and affordability to American consumers, and regulates only when market driven forces alone may not achieve broader social goals. The Commission has found that the Commercial Mobile Radio Services (CMRS) market is effectively competitive, and that competitive pressures continue to result in the introduction of innovative pricing plans and service offerings.[458] We have not found, however, that competition in the CMRS marketplace is ensuring that consumers drive handset and application choices, especially in the emerging wireless broadband market. For example, while it is easy for consumers to differentiate among providers by price, most consumers are unaware when carriers block or degrade applications and of the implications of such actions, thus making it difficult for providers to differentiate themselves on this score.[459] As a result, while many commenters assert that market forces require that wireless providers support handsets and applications that consumers want,[460] there is evidence that wireless service providers nevertheless block or degrade consumer-chosen hardware

[455] *See* Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks, WT Docket No. 07-53, *Declaratory Ruling*, 22 FCC Rcd 5901, 5908 ¶ 16 (2007).

[456] *Id.*

[457] Tim Wu, *Wireless Net Neutrality: Cellular Carterfone and Consumer Choice in Mobile Broadband*, New America Foundation, Feb. 2007, at 9-12 <http://ssrn.com/abstract=962027>.

[458] Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, WT Docket No. 06-17, *Eleventh* Report, 21 FCC Rcd 10947, 10950 ¶¶ 2-3 (2006) (*Eleventh Annual CMRS Competition Report*).

[459] Tim Wu, *Wireless Net Neutrality: Cellular Carterfone and Consumer Choice in Mobile Broadband*, New America Foundation, Feb. 2007, at 38 http://ssrn.com/abstract=962027 ("[T]aking the time to do comparisons on the basis of whether the carrier cripples technological feature sets is something only a select group of consumers have the time or expertise to do.").

[460] *See, e.g.*, Verizon Wireless July 25 *Ex Parte*, Attachment at 7-15.

and applications without an appropriate justification.[461]

201. We do not decide in this proceeding whether competition in the CMRS market generally is sufficient to ensure that consumers have the ability to use wireless devices and applications of their choice in the emerging wireless broadband market, especially since these questions are being considered more broadly in other proceedings.[462] Given the nature of this spectrum and the lack of additional similar spectrum capacity that can be made available in the near future, however, what we decide here is important to the evolution of the next generation of wireless technology, industry structure and institutional arrangements. This auction provides a window of opportunity to have a significant effect on the next phase of mobile wireless technological innovation, and on the evolution of market and institutional arrangements—such as arrangements regarding open platforms for devices and applications to the benefit of consumers —that will go along with that innovation. As a result, in light of the evidence suggesting that wireless service providers are blocking or degrading consumer-chosen hardware and applications without an appropriate justification, we believe that it is appropriate to take a measured step to encourage additional innovation and consumer choice at this critical stage in the evolution of wireless broadband services, by removing some of the barriers that developers and handset/device manufacturers face in bringing new products to market. By fostering greater balance between device manufacturers and wireless service providers in this respect, we intend to spur the development of innovative products and services.

202. To promote innovation in this spectrum band from the outset, we find it is reasonable to impose certain conditions on the C Block in the Upper 700 MHz Band to provide open platforms for devices and applications. While the Commission strives to apply a consistent regulatory framework to like services, that does not obligate us to treat all spectrum-based services identically.[463] The Commission has applied different spectrum regulatory models as warranted by different market conditions, ranging from licenses that largely grant exclusive rights to use the spectrum to unlicensed approaches in which access to the spectrum is open and subject to minimal rules.[464] Particularly in developing markets, regulatory policies have played an important role in encouraging new competitive services to emerge. Many technologies, such as Wi-Fi services, have developed as a result of regulatory policies established by the Commission in particular spectrum bands. Rather than adopt a single regulatory model to assign spectrum rights in all bands, the Commission has pursued a balanced spectrum policy that recognizes that, in certain instances, it may be necessary to vary the regulation of spectrum use to achieve certain critical

[461] *See, e.g.*, PISC *700 MHz Further Notice* Comments at 7; MoveOn.org Reply Comments at 1.

[462] We note, for example, that the competitive characteristics of the wireless voice market may not be the same as those of the wireless broadband market.

[463] We disagree with Verizon Wireless's contention that an open access requirement would be inconsistent with the Commission's precedent of deregulating broadband services and treating broadband platforms similarly. Verizon Wireless July 23 *Ex Parte* at 7-8. As we note below, the Commission has not yet made a finding regarding whether to apply open access requirements to wireless broadband services generally, and in this *Order*, defers that determination to the appropriate pending proceedings.

[464] *See, e.g.*, Unlicensed Operation in the TV Broadcast Bands, , ET Docket No. 04-186, *First Report and Order and Further Notice of Proposed Rule Making*, 21 FCC Rcd 12266 (2006) (*Unlicensed Operation in the TV Broadcast Band First Report and Order)*; Wireless Operations in the 3650-3700 MHz Band, ET Docket No. 04-151, *Memorandum Opinion and Order*, 22 FCC Rcd 10421, 10425-30 (2007) (*3650 MHz Reconsideration Order*); Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems, ET Docket No. 98-153, *First Report and Order*, 17 FCC Rcd 7435, 7441-46 (2002).

public interest objectives.[465]

203. We are taking a similarly balanced approach here by requiring the licenses for one of the remaining spectrum blocks to be auctioned to provide open platforms for devices and applications. We are mindful that some of the restrictive practices set forth in the record appear to be used by wireless service providers for purposes other than simply protecting the network from harm. We also recognize supporters' argument that the 700 MHz Band offers an opportunity to encourage innovation in network devices and applications in spectrum with valuable propagation characteristics, without adversely affecting 700 MHz Band licensees' network operations or viability.[466] The 700 MHz Band provides a rare opportunity to implement pro-consumer concepts without disrupting an existing service, given that there will not be any incumbents in the band after the DTV transition and that bidders for the spectrum will have notice of these obligations at the outset. In these circumstances, we conclude that prohibiting a provider's ability to unreasonably limit applications and devices on its network in a portion of the 700 MHz Band is both appropriate and feasible.

204. We believe that the C Block is the most reasonable block for applying a new regulatory model that attempts to give consumers additional choices. The C Block is a large 22-megahertz block (comprised of paired 11-megahertz blocks). As discussed above, we believe that a block of this size and scope will provide an environment conducive to the development and deployment of 4G services designed to compete with wireline broadband alternatives. Imposing such a requirement on a band with these characteristics should provide an opportunity for innovators and entrepreneurs to develop equipment and applications that require substantial bandwidth to realize their full potential. It should also provide sufficient potential market penetration to attract investment and achieve economies of scale in the equipment marketplace. Without access to a block capable of supporting high data rates and the potential for substantial market penetration, the requirements we impose here would be less likely to result in rapid innovation at the edge of the network. Thus, more than any other spectrum block in the 700 MHz Band, it is the C Block that would benefit from our intervention to help ensure that access to anticipated 4G services is not unduly inhibited or foreclosed.

205. While we adopt a requirement for the C Block licensees to provide open platforms for devices and applications, we decline at this time to impose these same principles or other openness obligations broadly in the 700 MHz Band, as recommended in PISC's open access and Google's broader proposals.[467] Given the state of the record, we believe that a more measured approach is appropriate. While the open platform requirement for devices and applications in the C Block holds the potential to foster innovation, we cannot rule out the possibility that such a requirement may have unanticipated drawbacks as well. Therefore, we think that it is appropriate to impose the open platform requirement only on a limited basis. While the record in this proceeding regarding the potential merits or drawbacks of the open platform requirement for devices and applications is not so clear as to warrant adopting such conditions for the entire 700 MHz Band, the approach that we take today will allow both the Commission

[465] *3650 MHz Reconsideration Order*, 22 FCC Rcd 10421 (2007); Unlicensed *Operation in the TV Broadcast Bands First Report and Order*, 21 FCC Rcd 12266 (2006); Spectrum Policy Task Force Report, ET Docket No. 02-135 (2002). Also see the special requirements adopted herein for the Upper 700 MHz D Block, related to its operation under a Public/Private Partnership.

[466] *E.g.*, PISC notes that the licensing of the new 700 MHz spectrum presents a unique opportunity to affirmatively facilitate the creation of new broadband competitors. PISC also claims that favorable propagation characteristics of the 700 MHz spectrum—compared with the higher frequencies allocated to the PCS, AWS and unlicensed wireless services—could make this spectrum "many consumers' primary source of high speed Internet access and low-cost voice service." PISC *700 MHz Further Notice* Comments at 14-15, and App. A at 15.

[467] *See* PISC *700 MHz Further Notice* Comments at 12-29 (urging adoption of wholesale service, net neutrality and *Carterfone* requirements); Google July 9 *Ex parte* at 4-9 (advocating "open platform" requirements).

and industry to observe the real-world effects of such a requirement. Moreover, we note that to the extent the results of our C Block requirements prove attractive to consumers, we would anticipate that providers in other 700 MHz Band blocks and other bands will have competitive incentives to offer similar choices. We disagree with PISC's suggestions that the wireless market is not competitive.[468] We also reject Google's argument that mandatory wholesale and other broad regulatory models are necessary at this time to provide incentives for new entry and innovation. We have not established wireless regulatory policies based solely on "leveling the playing field" against incumbent operators, as suggested by Google, and we decline to do so here.[469] In addition, the record is not sufficient to adopt broader obligations here or even to decide the specifics of such mandates.

206. Accordingly, consistent with the broadband principles set out above, we will require only C Block licensees to allow customers, device manufacturers, third-party application developers, and others to use or develop the devices and applications of their choosing in C Block networks, so long as they meet all applicable regulatory requirements and comply with reasonable conditions related to management of the wireless network (*i.e.*, do not cause harm to the network). Specifically, a C Block licensee may not block, degrade, or interfere with the ability of end users to download and utilize applications of their choosing on the licensee's C Block network, subject to reasonable network management. We anticipate that wireless service providers will address this requirement by developing reasonable standards, including through participation in standards setting organizations, as discussed below. Finally, for the reasons noted above, we will not impose additional requirements on the C Block, including wholesale and interconnection requirements.

207. *Commission's Authority to Impose Requirements for Open Platforms for Devices and Applications.* As a general matter, the Commission has the authority to establish license conditions and operational obligations, such as the requirements we adopt here, if the condition or obligation will further the goals of the Communications Act without contradicting any basic parameters of the agency's authority.[470] As we have demonstrated above, the record is sufficient to conclude that current practices in the industry may be impeding the development and deployment of devices and applications that consumers want to use. Thus, a requirement to allow consumer use of any such devices and applications (limited by reasonable requirements to protect the network and to enable the wireless service provider to comply with its regulatory obligations) in a band like the C Block holds the potential to foster the development of innovative devices and applications, and as a result, promises to benefit consumers. This type of initiative – in terms of purpose, scope, and method of implementation – falls squarely within a number of the Commission's statutory sources of authority.[471]

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[468] *Eleventh Annual CMRS Competition Report*, 21 FCC Rcd at 10950-51 ¶¶ 1-5, 11029-31 ¶¶ 213-216.

[469] Google July 9 *Ex Parte* at 4 (supporting the need for open access to level the playing field because of large incumbents' "significant built-in advantages [of] economic and operational barriers to entry"); Verizon Wireless July 24 *Ex Parte* at 2 (opposing Google's "level playing field" argument). The Commission has historically required that, to the extent practical, technical and operational rules should be comparable for CMRS services. However, we have also recognized that with different policy goals – or under different circumstances – we may come to different conclusions regarding the extent of competition. *See Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services*, 9 FCC Rcd 7988, ¶ 14 (1994).

[470] *See, e.g.*, 47 U.S.C. § 303 (stating that if "the public convenience, interest, or necessity requires [, the Commission] shall . . . (r) . . . prescribe such restrictions and conditions, not inconsistent with law, as may be necessary to carry out the provisions of this Act"); *Schurz Communications, Inc. v. FCC*, 982 F.2d 1043, 1048 (7th Cir. 1992) (Communications Act invests Commission with "enormous discretion" in promulgating licensee obligations that the agency determines will serve the public interest).

[471] *See, e.g.*, 47 U.S.C. § 309(j)(3) (requiring that, "in specifying eligibility and other characteristics of . . . licenses [to be issued by competitive bidding] . . . , and in designing the methodologies for use under this subsection, the (continued....)

208. Verizon Wireless raises a host of legal arguments with respect to the Commission's statutory authority to implement such open access requirements. It argues, among other things, that open access requirements for wireless services place unnecessary burdens on the wireless industry and impair the value of the affected spectrum, and that therefore such regulation is contrary to the public interest as well as inconsistent with various goals specified in the Communications Act, including Section 309(j).[472] It challenges our authority to impose open access requirements on the ground that such requirements would be inconsistent with various Title III-based obligations, such as E911 requirements.[473] It also argues that imposing open access requirements is inconsistent with the Commission's prior determinations regarding the regulation of broadband services,[474] violates various sections of the Communications Act, and affects the First Amendment rights of existing providers.[475] Finally, Verizon Wireless asserts that we are setting aside this spectrum as a "pioneer's preference block," or providing a special bidding credit to new entrants in the upcoming auction for this spectrum.[476]

209. Verizon Wireless's arguments fail for two primary reasons: (1) many of its arguments are directed at a broader set of openness requirements than those that we adopt here; and (2) Verizon Wireless's other arguments are either based on erroneous interpretations of relevant statutory provisions or erroneous factual assumptions.

210. To begin with, many of Verizon Wireless's objections focus on broader openness requirements than what is contemplated here. Thus, Verizon Wireless argues that the Commission is attempting to impose the same regulatory access model on wireless service providers that Congress, in the Section 251 interconnection provisions of the Communications Act, applied to the ILECs. According to Verizon Wireless, this approach contradicts the Commission's "Congressional mandate to apply a light regulatory touch to the wireless industry" and would "unwind the careful regulatory balance struck by Congress by applying ILEC obligations piecemeal on non-ILECs."[477] The Commission, however, is not

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Commission shall include safeguards to protect the public interest in the use of the spectrum and shall seek to promote the purposes specified in section 1 of this Act and [in six] . . . objectives [enumerated in subsection (j)(3)(A)-(F)]"); 47 U.S.C. § 309(j)(3)(A) & (D) (listing as subsection (j)(3) objectives "(A) the development and rapid deployment of new technologies, products, and services for the benefit of the public . . . without administrative or judicial delays; . . . [and] (D) efficient and intensive use of the electromagnetic spectrum"); 47 U.S.C. § 151 [Section 1 of the Communications Act] (stating that one of the purposes for the creation of the FCC is to foster "a rapid, efficient . . . radio communication service with adequate facilities at reasonable charges"); 47 U.S.C. § 303 (authorizing the Commission, "as public interest, convenience, or necessity requires," to "(b) [p]rescribe the nature of the service to be rendered by each class of licensed stations and each station within any class . . . (g) [s]tudy new uses for radio, provide for experimental uses of frequencies, and generally encourage the larger and more effective use of radio in the public interest"); 47 U.S.C. § 157 nt (directing the FCC to encourage the deployment of advanced telecommunications capability through regulatory measures that promote competition or remove barriers to infrastructure investment). In addition, the Communications Act provides the Commission with broad powers to take action necessary to execute its functions and to carry out the provisions of the Act. 47 U.S.C. §§ 154(i) (stating that the Commission "may perform any and all acts, make such rules and regulations, and issue such orders, not inconsistent with this Act, as may be necessary in the execution of its functions") and 303(r) (listing, as one of the Commission's general powers, the authority to "[m]ake such rules and regulations and prescribe such restrictions and conditions, not inconsistent with law, as may be necessary to carry out the provisions of this Act").

[472] Verizon Wireless July 24 *Ex Parte* at 7-8.

[473] *See* Verizon Wireless July 24 *Ex Parte* at 19-20.

[474] Verizon Wireless July 24 *Ex Parte* at 7-8.

[475] *Id.* at 12-15.

[476] Verizon Wireless July 24 *Ex Parte* at 20-21.

[477] Verizon Wireless July 24 *Ex Parte* at 16.

promulgating new interconnection (or quasi-interconnection) requirements for wireless providers here. Rather, the requirements that we adopt today are limited to devices and applications. Section 251[478] simply does not address restrictions by ILECs and CLECs on the use of non-provider supplied devices or applications. Verizon Wireless's concern that the Commission is extending Section 251 requirements to wireless service providers is, therefore, without merit.

211. Similarly, to the extent that Verizon Wireless's arguments rely on the alleged negative effects of (and/or lack of need for) the broader requirements proposed by PISC and Google, these arguments are moot in light of the limited focus of the requirements that we actually adopt. Accordingly, we need not address whether such broad requirements would, in fact, work against the goals of Section 706 of the 1996 Telecommunications Act,[479] or Sections 4(i), 303(r), or 309(j)(3) of the Communications Act.[480]

212. Verizon Wireless further asserts that the very statutory provisions we have cited as the sources of our authority to promulgate these limited openness requirements in fact bar us from doing so.[481] As we have explained in detail above, however, we disagree with Verizon Wireless's assessment of the need for and likely effects of limited openness requirements. We agree with Verizon Wireless that one of the main statutorily based principles of our regulatory approach is to limit our regulatory intervention as much as possible and to rely, in the first instance, on marketplace forces to direct the development of the communications industry.[482] However, Verizon Wireless's citation of generalized statements to this effect and its references to our application of this principle to particular aspects of the wireless industry not at issue in this proceeding do not alter our conclusion here. Limited openness requirements are an appropriate response to certain practices in the emerging wireless broadband market and are consistent with the Commission's general approach toward regulation.

213. Verizon Wireless also suggests that adoption of limited openness requirements would exceed the Commission's statutory authority because such requirements would frustrate the objectives set forth in Section 309(j)(3)(C) and (D). More specifically, Verizon Wireless contends that these requirements will reduce the value of the spectrum, and will undermine the statutory goals of recovering for the public a portion of the value of the spectrum and of promoting efficient and intensive use of the spectrum.

214. However, we do not agree with Verizon Wireless that the requirements we adopt here will necessarily frustrate any of the objectives set forth in Section 309(j)(3). It is not clear that these requirements will significantly deter bidders and thus hinder in any meaningful way the Commission's

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[478] *Id.*

[479] 47 U.S.C. § 157 nt (directing the Commission to encourage the deployment of advanced telecommunications capability through regulatory measures that promote competition or remove barriers to infrastructure investment).

[480] 47 U.S.C. §§ 154(i), 303(r), 309(j)(3).

[481] For example, Verizon Wireless points to these alleged negative effects in arguing that open access requirements work against the Section 309(j)(3)(D) objective of promoting efficient and intensive use of the spectrum and are unsupported by the Commission's Section 4(i) and 303(r) powers to impose regulations that are necessary to carry out the provisions of the Communications Act and to execute the agency's functions. Verizon Wireless July 24 *Ex Parte* at 17-20.

[482] For example, our 1992 order permitting the bundling of handsets with wireless service contracts was based on the status of the wireless marketplace at that time, not on any limit to our regulatory authority. Interestingly, that order noted that "current nondiscrimination requirements preclude a cellular carrier from refusing to provide service to a customer on the basis of what CPE the customer owns," which is one of the very objectives we seek to obtain here. *See* Bundling of Cellular Customer Premises Equipment and Cellular Service, CC Docket No. 91-34, *Report and Order*, 7 FCC Rcd 4028, 4032 (1992).

ability to recover for the public "a portion of the public spectrum resource." Additionally, we do not consider the possible reduction in the monetary value of the spectrum contradictory to the letter or spirit of the objective of subsection (j)(3)(C), since that objective only seeks recovery of "a portion of the value of the public spectrum resource." Indeed, the focus of the statutory language on recovery of "a portion" rather than the full value of the spectrum supports the conclusion that the Commission serves the objective of Section 309(j)(3)(C) if it recovers less than maximum market value if necessary to obtain the benefits of other statutory objectives.[483] As for the Section 309(j)(3)(D) objective of promoting the efficient and intensive use of the electromagnetic spectrum, we believe that our use of these requirements here may result in a net gain of efficiency, given the potential that it holds for encouraging the development of new and innovative devices and applications in connection with such spectrum use.[484]

215. But even if Verizon Wireless's claims about spectrum value and network efficiency were correct, Section 309(j)(3) requires the Commission to balance several statutory objectives.[485] Therefore, Section 309(j)(3) does not preclude regulation that may serve one of these objectives more than another.[486] Looking to the specific goals set forth in Section 309(j)(3), we believe the requirements for open platforms for devices and applications adopted here further the objectives of Section 309(j)(3)(A) – developing and rapidly deploying new technologies, products, and services for the benefit of the public. We believe the benefits stemming from these requirements outweigh whatever possible negative effect they might have with respect to the other objectives set forth in the statutory provision. Thus, even if the limited requirements we impose today have some potential for reducing the monetary value and decreasing efficient use of spectrum in some respects, we believe that they are in the public interest and consistent with Section 309(j)(3).[487]

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[483] *Cf.* 47 U.S.C. § 309(j)(7)(A) ("In making a decision pursuant to Section 303(c) of this title to assign a band of frequencies to a use for which licenses or permits will be issued pursuant to this subsection, and in prescribing regulations pursuant to paragraph (4)(C) of this subsection, the Commission may not base a finding of public interest, convenience, and necessity on the expectation of Federal revenues from the use of a system of competitive bidding under this subsection."); *id.* § 309(j)(7)(B) ("In prescribing regulations pursuant to paragraph (4)(A) of this subsection, the Commission may not base a finding of public interest, convenience, and necessity solely or predominantly on the expectation of Federal revenues from the use of a system of competitive bidding under this subsection.").

[484] We also reject Verizon Wireless's assertion that the requirements we adopt here are designed to unjustly enrich Google in violation of Section 309(j)(3)(C). *See* Verizon Wireless July 24 *Ex Parte* at 17. As indicated above, we do not implement today all of the requirements proposed by Google, and our rules are designed to enhance innovation and consumer choice, not to benefit any particular company.

[485] *See* Implementation of the Commercial Spectrum Enhancement Act and Modernization of the Commission's Competitive Bidding Rules and Procedures, WT Docket No. 05-211, *Order on Reconsideration of the Second Report and Order*, 21 FCC Rcd 6703, 6708, ¶ 12.

[486] *See, e.g., U.S. Airwaves, Inc. v. FCC*, 232 F.3d 227 (D.C. Cir. 2000) (recognizing that statutory goals of Section 309(j)(3), as well as goals of maintaining the integrity of the auctions process and ensuring fairness to all market participants, may be competing and potentially in opposition, and that a "regulatory decision in which the Commission must balance competing goals is . . . [nevertheless] valid if the agency can show that its resolution 'reasonably advances at least one of those objectives and [that] its decisionmaking process was regular.' *Fresno Mobile Radio, Inc. v. FCC*, 165 F.3d 965, 971 (D.C. Cir. 1999)"); *Melcher v. FCC*, 134 F.3d 1143, 1154 (D.C. Cir. 1998) (recognizing that even within one of the Section 309(j)(3) objectives – subsection (B) – Congress set forth "a number of potentially conflicting objectives," and that the Commission has the discretion to decide how much precedence particular policies will be granted when several will be implicated in a single decision).

[487] For similar reasons, we believe that our decision to impose requirements for open platforms for devices and attachments is consistent with other statutory provisions that direct the Commission to promote new and advanced (continued....)

216. Verizon Wireless also challenges our authority to impose open access requirements on the ground that such requirements would be inconsistent with various Title III-based obligations that the Commission has imposed on wireless providers, such as handset radio frequency emission standards, CALEA obligations, and E911 requirements, which, according to Verizon Wireless, would be difficult or impossible to meet under an open access regime for devices and applications.[488] As reflected below, however, we have taken this concern into account. Wireless providers are not required to permit attachment of any device or application that would interfere with the provider's obligations to comply with applicable regulatory requirements, including those mentioned above. In addition, while Verizon Wireless also claims that our requirements are inconsistent with the Title III regulatory regime that "is premised on a licensee's ability (and corresponding responsibility) to ensure the proper operation of all transmitters operating on its spectrum,"[489] this is not the case. We specifically allow providers to utilize reasonable network management practices and "restrict particular non-carrier devices and applications on their networks, specifically to ensure the safety and integrity of their networks."[490]

217. We also reject arguments by Verizon Wireless that the requirements that we adopt today for devices and applications for the Upper 700 MHz C Block violate the First Amendment.[491] First, Verizon Wireless has not demonstrated that our requirement that licensees in the Upper 700 MHz Band C Block allow customers, device manufacturers, third-party application developers, and others to use or develop devices and applications of their choice (subject to certain limitations) implicates the First Amendment. Our rules regulate the functionality of the spectrum and the conduct of the licensee – activities that we believe are "not sufficiently imbued with elements of communication to fall within the scope of the First ... Amendment."[492] Indeed, Verizon Wireless has cited no authority supporting the proposition that activities such as "locking" handsets to prevent their transfer from one system to another or blocking Wi-Fi access, MP3 playback ringtone capability, or other applications that compete with wireless providers' own offerings are protected speech under the First Amendment. Moreover, our rules in no way limit the licensee in the Upper 700 MHz C Block from offering its preferred devices and applications to its customers; rather, the licensee simply will not be able to force customers to use such devices or applications if those customers would prefer to use others.[493] To the extent that a choice of device or application implicates First Amendment values at all, we think that our requirements promote rather than restrict expressive freedom because they provide consumers with greater choice in the devices and applications they may use to communicate. Accordingly, we believe that Verizon Wireless has not met its burden of demonstrating that any First Amendment scrutiny is even applicable to our provisions

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technologies, *see, e.g.*, 47 U.S.C. § 157, Pub. L. No. 104-104, § 706, 110 Stat. 56 (1996), notwithstanding Verizon Wireless's claim to the contrary, *see* Verizon Wireless July 24, 2007 *Ex Parte* at 15-16.

[488] *See* Verizon Wireless July 24, 2007 *Ex Parte* at 19-20.

[489] *Id.* at 19.

[490] *See infra*, ¶ 223.

[491] We note that many of Verizon Wireless's First Amendment arguments relate to proposed open access requirements that we do *not* adopt today, such as open access requirements for networks and services. *See infra*, ¶¶ 222-228, and Verizon Wireless July 24 *Ex Parte* at 12-14. We address only those arguments that are relevant to the requirements we adopt, which are limited to devices and applications.

[492] *Spence v. State of Washington*, 418 U.S. 405, 409 (1974).

[493] *Cf. Hill v. Colorado*, 530 U.S. 703, 716-717 (2000) ("The unwilling listener's interest in avoiding unwanted communication has been repeatedly identified in our cases.") and *Rowan v. U.S. Post Office Dept.*, 397 U.S. 728, 737 (1970) ("Nothing in the Constitution compels us to listen or view any unwanted communication.").

for open platforms for devices and applications.[494]

218. However, even if these rules do implicate the First Amendment, they withstand the applicable "intermediate scrutiny" test. The Supreme Court has held that "[a] content-neutral regulation will be sustained under the First Amendment if it advances important governmental interests unrelated to the suppression of free speech and does not burden substantially more speech than necessary to further those interests."[495] First, our regulations advance an important governmental interest unrelated to the suppression of free speech. As we note above, there is evidence in the record that wireless service providers block or degrade consumer-chosen hardware and applications, including Wi-Fi capabilities, for reasons that appear unrelated to reasonable network management or technological necessity. We believe that imposing requirements related to open platforms for devices and applications to the large 22-megahertz C Block will promote innovation in new technologies and products and help ensure that consumers drive handset and application choices. This balanced approach is intended to achieve the public interest objectives we outline above and thus advances important governmental interests.

219. With respect to the second prong of the intermediate scrutiny test, the requirements do not burden substantially more speech than necessary to further those interests. These rules will only apply to a 22-megahertz block of spectrum in the Upper 700 MHz band. We impose these requirements in this particular block so that innovators and entrepreneurs will be able to develop equipment and applications that require substantial bandwidth to realize their full potential. As we indicated above, without access to a block capable of supporting high data rates and the potential for substantial market penetration, the requirements we impose here would be less likely to result in rapid innovation at the edge of the network.[496] Furthermore, we limit our requirements to licenses large enough to allow the licensees to achieve economies of scale that will minimize the ongoing operating costs of determining whether particular third-party equipment and applications would operate satisfactorily on their networks. Significantly, we will not disrupt an existing service because there will be no incumbents in the band after the DTV transition. In addition, bidders will have notice of these obligations at the outset. Finally, we reiterate that our rules do not limit the wireless provider's ability to offer its preferred devices and applications on its network in the C Block spectrum. Rather, our rules ensure that in the C Block spectrum, consumers can choose to use devices and applications offered by the C Block licensee or opt to use devices and applications offered by others. Such an approach is clearly less restrictive than directly limiting the devices and applications that the C Block licensee can provide.[497]

220. In addition, for the same reasons that we discuss above, we reject Verizon Wireless's argument that the provisions we adopt today constitute an impermissible burden on commercial speech. As a threshold issue, we do not believe that the conduct we are regulating implicates protected commercial speech. Verizon Wireless cites no precedent to support its implicit assertion that it has a constitutional right to exclude devices and applications from its network that are not part of its branding campaign. We are unaware of any precedent, for instance, suggesting that the application of *Carterfone*

[494] *See Clark v. Community for Creative Non-Violence*, 468 U.S. 288, 294, n.5 (1984) ("Although it is common to place the burden upon the Government to justify impingements on First Amendment interests, it is the obligation of the person desiring to engage in assertedly expressive conduct to demonstrate that the First Amendment even applies.").

[495] *Turner Broadcasting System, Inc. v. FCC*, 520 U.S. 180, 189 (1997).

[496] *See supra*, ¶ 204.

[497] *See Mainstream Marketing Services, Inc. v. FTC*, 358 F.3d 1228, 1242 (10th Cir. 2004), *citing Rowan v. United States Post Office Dep't*, 397 U.S. 728 (1970) and *Martin v. City of Struthers*, 319 U.S. 141 (1941) ("The Supreme Court has repeatedly held that speech restrictions based on private choice (*i.e.*, an opt-in feature) are less restrictive than laws that prohibit speech directly.").

principles to the wireline telephone network violates providers' free speech rights. But even if Verizon Wireless does have such a right, our regulations pass muster under the test governing First Amendment challenges to commercial speech,[498] for the same reasons we find that they withstand intermediate scrutiny applicable to content-neutral regulation as described above.

221. Finally, we reject Verizon Wireless's arguments that we are setting aside this spectrum as a "pioneer's preference block," or providing a special bidding credit to new entrants in the upcoming auction for this spectrum.[499] Our imposition of requirements for open platforms for devices and applications is intended not to benefit particular companies, but consumers, who will have the freedom of using any device or application they choose, subject to certain conditions. Unlike the Commission's former pioneer preference program where a license could be obtained outside of the auction process under certain circumstances, the C Block will be subject to auction and open to all qualified bidders.

222. *Scope of the requirement for open platforms for devices and applications.* Wireless service providers subject to this requirement will not be allowed to disable features or functionality in handsets where such action is not related to reasonable network management and protection, or compliance with applicable regulatory requirements.[500] For example, providers may not "lock" handsets to prevent their transfer from one system to another. We also prohibit standards that block Wi-Fi access, MP3 playback ringtone capability, or other services that compete with wireless service providers' own offerings. Standards for third-party applications or devices that are more stringent than those used by the provider itself would likewise be prohibited. In addition, C Block licensees cannot exclude applications or devices solely on the basis that such applications or devices would unreasonably increase bandwidth demands. We anticipate that demand can be adequately managed through feasible facility improvements or technology-neutral capacity pricing that does not discriminate against subscribers using third-party devices or applications. In that regard, we emphasize that C Block licensees may not impose any additional discriminatory charges (one-time or recurring) or conditions on customers who seek to use devices or applications outside of those provided by the licensee. Finally, C Block licensees may not deny access to a customer's device solely because that device makes use of other wireless spectrum bands, such as cellular or PCS spectrum.[501] However, we also note that, in accepting a multi-band device for use on its network, a C Block licensee is not required to extend the requirement for open platforms for

[498] *See Zaunderer v. Office of Disciplinary Counsel of the Supreme Court*, 471 U.S. 626, 637 (1985) ("[C]ommercial speech" is entitled to the protection of the First Amendment, albeit to protection somewhat less extensive than that afforded "noncommercial speech."); *see also Central Hudson v. Pub. Serv. Comm'n of New York*, 447 U.S. 557, 564 (1980), which provides a three-part test applicable to regulations restricting non-misleading commercial speech that relates to lawful activity: (1) the government must assert a substantial interest to be achieved by the regulation; (2) the regulation must directly advance that governmental interest, meaning that it must do more than provide "only ineffectual or remote support for the government's purpose;" and (3) the regulation must be narrowly tailored not to restrict more speech than necessary. We believe our analysis above clearly demonstrates that (1) a substantial interest is achieved by our rules for open platforms for devices and attachments; (2) the rules directly advance the government interest; and (3) the rules are narrowly tailored.

[499] Verizon Wireless July 24 *Ex Parte* at 20-21.

[500] We note that the Copyright Office has granted a three-year exemption to the anti-circumvention provisions of Section 1201 of the Digital Millennium Copyright Act, for "computer programs in the form of firmware that enable wireless telephone handsets to connect to wireless telephone communication network, when circumvention is accomplished for the sole purpose of lawfully connecting to a wireless telephone communication network." It found that software locks on mobile handsets adversely affect the ability of consumers to make non-infringing use of the software in those handsets. 17 Fed. Reg. 68472 (Nov. 27, 2006). We also note that a court appeal of the exemption ruling is ongoing.

[501] *See* Google July 24 *Ex Parte* at 3-4 (raising concerns about whether providers can avoid an open access requirement by refusing to attach multimode devices).

devices and applications to other spectrum bands on which the provider operates.

223. We emphasize that we are not requiring wireless service providers to allow the unrestricted use of *any* devices or applications on their networks. In particular, we are mindful of the risks network operators face in protecting against harmful devices and malicious software. Wireless service providers may continue to use their own certification standards and processes to approve use of devices and applications on their networks so long as those standards are confined to reasonable network management. For example, providers are free to choose their air interface technology, and to deny service to devices or applications that cannot operate on the same technology, since such a restriction permits significant network efficiencies without significantly reducing consumer access to services and features.[502] We also recognize that wireless providers have legitimate technical reasons to restrict particular non-carrier devices and applications on their networks, specifically to ensure the safety and integrity of their networks. In particular, we believe that it is reasonable for wireless service providers to maintain network control features that permit dynamic management of network operations, including the management of devices operating on the network, and to restrict use of the network to devices compatible with these network control features. Standards to ensure that network performance will not be significantly degraded would also be appropriate.[503]

224. We will not at this time specify a particular process for C Block licensees to develop reasonable network management and openness standards, but we will require certain minimum steps to ensure that device manufacturers and application developers have the ability to design products for this spectrum in a timely manner. Specifically, a C Block licensee must publish[504] standards no later than the time at which it makes such standards available to any preferred vendors (*i.e.*, vendors with whom the provider has a relationship to design products for the provider's network). We also require the C Block licensee to provide to potential customers notice of the customers' rights to request the attachment of a device or application to the licensee's network, and notice of the licensee's process for customers to make such requests, including the relevant network criteria. We expect that any standards adopted by a C Block licensee will be non-proprietary, such that they would be open to any third party vendors and that the standards applied to third parties will be no more restrictive than those applied to the provider's preferred vendors. We believe that standards transparency should greatly reduce the potential for manipulative "white-listing," *i.e.*, providers creating complex and vague qualification and approval processes for third parties before approval to attach devices or run applications on the network. In addition to publishing any applicable standards, providers must establish a reasonable process for expeditiously reviewing requests from manufacturers, application developers and consumers to employ devices and applications on their networks. If a provider denies such a request, it must offer a specific explanation and an opportunity for amendment of the request to accommodate the provider's concerns. Finally, the Commission will ensure the sufficient openness of any network management practices and selected technical standards in the event the approach outlined above proves unsatisfactory.

225. While we are not aware of any current industry-wide standards specifically focusing on network management, we encourage the development of such standards by an appropriate standard-setting body at the earliest possible date. There is a rich history of standards-setting bodies whose work

[502] We also note that wireless service providers may continue to use their choice of operating systems, and are not required to modify their network infrastructure or device-level operating systems to accommodate particular devices or applications. Device manufacturers and applications developers are free to design their equipment and applications to work with providers' network infrastructure and operating systems, and must be given the applicable parameters as part of the standards provided to third parties.

[503] For example, a provider could exclude devices such as signal boosters and repeaters to the extent they are inconsistent with the technical or operational parameters of the network.

[504] Publication could be accomplished, for example, by posting on the provider's website.

draws on industry experts and other interested parties to ensure that consumer devices operate efficiently in their networks, including, for instance, the Network Reliability and Interoperability Council (NRIC)[505] and the Open Mobile Alliance (OMA).[506] In particular, we encourage the industry, in its development of fourth generation (4G) air interface standards, to include within those standards reasonable network management criteria relating to devices and applications. As discussed below, where a provider bases its network restrictions on industry consensus standards, we would afford the restrictions a presumption of reasonableness in the event that a complaint is raised with the Commission.

226. *Application of other regulatory requirements.* We also recognize that wireless providers play an important role in supporting public safety and homeland security. The measures we are imposing shall not override wireless service providers' obligations to ensure that their networks and devices comply with applicable regulatory requirements (*e.g.*, power and emission limits, E911, CALEA, etc.). For instance, if a provider is implementing E911 using a handset-based solution, its obligation to connect handsets to its network would not extend to handsets that are not capable of providing automatic location information to the network.[507] Similarly, if a provider relies on a network-based E911 solution, it can reject any devices or applications that would hamper or defeat the network-based E911 solution.[508] If a network provider accepts a non-carrier device or application and if the device or application subsequently causes a violation of our rules, we will apply the same third-party liability provisions as in the wireline context.[509]

227. We find that a wireless service provider's obligations under our hearing aid compatibility rule, Section 20.19, are not affected by the obligations we impose here. Because equipment manufacturers have an independent obligation to satisfy our hearing aid compatibility rules,[510] a wireless service provider may not refuse to connect a handset on the grounds that it is not hearing aid-compatible.[511] Under the Commission's rules, the extent of a wireless service provider's compliance with such obligations is not affected by handsets that connect to its network but that the provider does not itself "offer" to its subscribers. Section 20.19(c)(2)(ii) currently requires that, by February 18, 2008, non-nationwide providers subject to the rule must ensure that 50 percent of their models meet a specified hearing aid compatibility standard, calculated based on the number of handsets a provider "offers nationwide."[512] Thus, handsets connected to the network but not actually offered by the provider do not

[505] Information about NRIC can be found at http://www.nric.org.

[506] OMA's website is at http://openmobilealliance.org.

[507] 47 C.F.R. § 20.18.

[508] 47 C.F.R. § 20.18.

[509] *See* Wireless Communications and Public Safety Act of 1999, Pub. L. No. 106-81, enacted Oct. 26, 1999, at Section 4 (911 Act).

[510] 47 C.F.R. § 20.19(c)(1). This section, among other things, provides that handset manufacturers must "[e]nsure at least 50 percent of their handset offerings for each air interface offered comply" with the Commission's hearing aid compatibility standards by February 18, 2008.

[511] We note that wireless service providers in the 700 MHz Band will not immediately be subject to hearing aid compatibility obligations. Although we determined in the *700 MHz Report and Order* that hearing aid compatibility requirements should be extended to 700 MHz licensees, among others, we declined to do so immediately because of the lack of an applicable technical standard for the band, and instead established a two-year period for the development of such a standard. *700 MHz Report and Order*, 22 FCC Rcd at 8117-21 ¶¶ 142-150. In addition, we note that under our current rules, wireless providers subject to these obligations that offer fewer than three handsets per air interface to customers are not obligated to provide hearing aid compatible handsets. *See* 47 C.F.R § 20.19(e)(1).

[512] 47 C.F.R. § 20.19(c)(2)(ii).

alter the extent to which the provider has complied with this requirement (although the manufacturer of such handsets will be required to meet the 50 percent requirement).[513] Other aspects of the rule applicable to wireless service providers are similarly tied exclusively to handsets offered, such as the obligation to make hearing aid compatible handsets available in a provider's retail store and the applicability of the *de minimis* exception.[514] Accordingly, because the connection to the network of a handset that a provider does not offer has no effect on the provider's compliance with the Commission's hearing aid compatibility obligations, the need to comply with Section 20.19 of our rules would not justify a provider's refusal to connect a device.

228. We decline at this time to alter our hearing aid compatibility obligations to specifically impose an obligation on C Block licensees to ensure the hearing aid compatibility of handsets that are connected to the network but not offered by the provider. Given that we have not sought comment on whether such an extension is appropriate and, if so, how it should be implemented, and that hearing aid compatibility obligations will not in any case be imposed in the 700 MHz Band until after the period for developing a technical standard has passed, taking such a step now would be premature. In any event, as noted above, once hearing aid compatibility obligations are extended to the 700 MHz Band, handset manufacturers will have independent requirements to offer a certain number of hearing aid compatible handsets. We also believe the requirements themselves will help ensure that customers may use available hearing aid compatible handsets regardless of whether they are offered by a wireless service provider or directly by an equipment manufacturer, subject only to the reasonable restrictions described above. We nevertheless direct the staff to consider in its upcoming report assessing the impact of our hearing aid compatibility rules whether any additional hearing aid compatibility requirements should be imposed on C Block licensees as a result of the obligations we adopt here.[515] Interested parties may also file *ex parte* comments in the hearing aid compatibility report docket on this issue.[516]

229. *Enforcement processes.* We intend to vigorously enforce the requirement adopted in this section. A person or entity who believes that the C Block licensee's refusal to attach a proposed device or application is a violation of the rules we adopt here may file a complaint pursuant to the Commission's existing enforcement rules, including the Commission's formal and informal complaint processes, where applicable.[517] Through review of complaints and other relevant information, we will monitor the ability of consumers, device manufacturers, and application developers to use or develop devices and applications for C Block networks. We will take appropriate enforcement action where necessary pursuant to the remedies available under our statutory authority as appropriate, including forfeitures,[518]

[513] *See* 47 C.F.R. § 20.19(c)(1).

[514] *See* 47 C.F.R. §§ 20.19(c)(2)(i)(A), 20.19(e).

[515] *See* Section 68.4(a) of the Commission's Rules Governing Hearing Aid-Compatible Telephones, WT Docket No. 01-309, *Report and Order*, 18 FCC Rcd 16753, 16782-83 ¶ 74 (2003). This order directed Commission staff to "deliver to the Commission a report that assesses the impact of our rules in achieving greater compatibility between hearing aids and digital wireless phones" shortly after three years from the order's effective date. *Id.*

[516] On November 8, 2006, the Wireless Bureau released a public notice seeking comment on topics to be addressed in the hearing aid compatibility report to be prepared by Commission staff. *See* Wireless Telecommunications Bureau Seeks Comments on Topics to be Addressed in Hearing Aid Compatibility Report, WT Docket No. 06-203, *Public Notice*, 21 FCC Rcd 13136 (2006).

[517] Formal complaints are filed pursuant to Section 208 of the Communications Act, 47 U.S.C. § 208, and are governed by Sections 1.720-1.736 of the Commission's rules, 47 C.F.R. §§ 1.720-1.736. Informal complaints are governed by Sections 1.716-1.719 of the Commission's rules, 47 C.F.R. §§ 1.716-1.719.

[518] *See* 47 U.S.C. § 503.

license revocations,[519] and cease-and-desist orders.[520]

230. We do not see any basis for modifying our existing enforcement rules, as proposed by some commenters,[521] to establish special requirements for addressing complaints related to open platforms for devices and applications. However, we commit to rule on these complaints within 180 days of receipt of such complaints. In addition, we believe it would be useful to set forth certain presumptions for these complaints. Specifically, once a complainant sets forth a *prima facie* case that the C Block licensee has refused to attach a device or application in violation of the requirements adopted in this section, the licensee shall have the burden of proof to demonstrate that it has adopted reasonable network standards and reasonably applied those standards in the complainant's case. As noted above, where the licensee bases its network restrictions on industry-wide consensus standards, we would afford the restrictions a presumption of reasonableness. Lastly, we note that, as suggested by Google,[522] interested parties may file a petition for declaratory ruling where a particular practice has broad market impact.[523]

(iv) Use of Dynamic Spectrum Management Techniques

231. Background. On May 21, 2007, Google filed an *ex parte* letter in this proceeding in which it requests that the Commission declare that existing rules governing commercial spectrum in the 700 MHz Band already permit licensees to institute dynamic spectrum management techniques, such as what it terms "dynamic auction mechanisms."[524] Google asserts that licensees could use these techniques to institute a practice whereby access to spectrum is provided on an as-needed basis, and payments would be made as the spectrum is being used.[525] Google explains that a licensee using such mechanisms could recover its costs in obtaining the license at the Commission's auction by charging third parties for their real-time and place use of the licensed spectrum.[526] In addition, Google requests that the Commission consider whether it would be in the public interest to mandate the use of such techniques for some, or even all, of the commercial spectrum to be auctioned in the 700 MHz Band.[527]

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[519] *See* 47 U.S.C. § 312(a).

[520] *See* 47 U.S.C. § 312(b).

[521] *See* Skype July 24 *Ex Parte* at 1-2 (requesting rule modifications so that complainants would be required to make only a prima facie case of violation, and the agency would be required to resolve all complaints within 180 days of filing); Google July 24 *Ex Parte* at 4 (requesting rule modifications so that complainants would be required to make only a prima facie case of violation).

[522] *See* Google July 24 *Ex Parte* at 4.

[523] *See* 47 C.F.R. § 1.2.

[524] Letter from Richard S. Whitt, Esq., Washington Telecom and Media Counsel, Google, Inc. to Marlene H. Dortch, Secretary, FCC, filed May 21, 2007 (*Google Ex Parte*); *see also Google 700 MHz Band Further Notice Comments* at 7 (*Google Ex Parte* "seek[s] confirmation that successful bidders in the 700 MHz auction have the requisite authority to conduct dynamic auctions of their spectrum holdings"), Appendix A (incorporating *Google Ex Parte* as part of its comments). Google states that for every inquiry using the Google "search engine," the company separately performs its own real-time auction to determine the market price of a particular advertisement linked to a particular search term. Google asserts that, in the same way, an auction could be performed for a radio transmission in a pertinent place and time to determine the economic value that the market would support for that transaction. *Google Ex Parte* at 6.

[525] *Google Ex Parte* at 3.

[526] *Google Ex Parte* at 6.

[527] *Google Ex Parte* at 6. Google also proposed that the Commission require that the unpaired 6-megahertz Lower 700 MHz Band E Block should be reserved for broadband platforms. *Id.* This particular proposal is discussed elsewhere in this Second Report and Order. As noted above, on May 24, 2007, the Wireless Bureau issued a Public (continued....)

232. As a further elaboration of its term "dynamic auction mechanism," Google states that "[w]hile dynamic auctions can take many forms, the central concept is to utilize intelligent devices to resolve spectrum access contention."[528] Google provides examples of a "real-time airwaves auction model" and "per-device registration fees." Under a real-time airwaves auction model, the licensee could bestow the right to transmit an amount of power for a unit of time, with the total amount of power in any location being limited to a specified cap. This cap would be enforced by measurements made by the communications devices. Under this model, bands should be allocated in chunks as large as possible for channel capacity efficiency reasons, and the airwaves auction would be managed via the Internet by a central clearinghouse.[529] According to Google, with a per-device registration process, the communications device itself could become a key to the payment process, and that a consumer's price to purchase a device could include an airwaves registration fee which would grant the ability to gain unlimited use at a specified power level. Google also states that the device could include collision-detection and back-off features to limit congestion.[530]

233. Google contends that the use of dynamic spectrum management practices such as real-time auctions would maximize the use of underutilized spectrum resources, reduce barriers to entry, and thereby provide access to innovators to offer the consumer new applications, devices, and services at reasonable prices. According to Google, such practices also would spur broadband deployment.[531]

234. Several commenters oppose, on procedural grounds, our consideration of any of Google's proposals at this time. These commenters argue that consideration of the proposals in Google's *ex parte* letter comes too late in this proceeding and would further delay to the 700 MHz auction.[532]

235. CCIA supports Google's request for clarification that the use of dynamic spectrum management techniques is consistent with Commission rules.[533] Several parties comment more generally on the potential usefulness of dynamic spectrum management techniques, including but not limited to what Google references as dynamic spectrum auctions.[534] Commenters that support the use of dynamic spectrum management techniques such as real-time auctions claim that these techniques would promote innovation by creating a transparent, present-value market for spectrum, lowering up-front costs, and offering greater opportunities for entrepreneurial companies to access the spectrum resource.[535] These

(Continued from previous page)
Notice seeking comment on Google's service rules proposals. Public Notice, *Comment Sought on Google Proposals Regarding Service Rules for 700 MHz Band Spectrum,* WT Docket 06-150 *et al.,* DA 07-2197 (WTB, rel. May 24, 2007).

[528] *Google Ex Parte* at 3.

[529] *Google Ex Parte* at 4.

[530] *Google Ex Parte* at 4-5.

[531] *Google Ex Parte* at 2-5.

[532] *See, e.g.*, CTIA *Google Ex Parte* Comments at 14; MetroPCS *Google Ex Parte* Comments at 13 (maintaining that, while Google's proposal may have merit, it comes too late in a proceeding "with tight statutory deadlines" to be considered); AT&T *Google Ex Parte* Comments at 6; Verizon Wireless *Google Ex Parte* Comments at 8.

[533] CCIA *Google Ex Parte* Comments at 2;

[534] *See, e.g.*, CCIA *Google Ex Parte* Comments at 2, 4; Frontline *Google Ex Parte* Comments at 11; Wireless Founders Coalition for Innovation *Google Ex Parte* Comments at 4-5 (supporting use of "open auctions" with regard to the proposed commercial public-private partnership license); Vanu *Google Ex Parte* Comments at 2 (supporting "any rulemakings that can contribute to the goal of making spectrum a more accessible commodity, including but not limited to, the concept of dynamic spectrum auctions").

[535] *See, e.g.*, Wireless Founders Coalition for Innovation *Google Ex Parte* Comments at 4; CCIA *Google Ex Parte* Comments at 1, 3; Vanu *Google Ex Parte* Comments at 2, 5.

commenters also agree with Google that managing spectrum access to the licensed spectrum through the use of dynamic auction mechanisms could facilitate in the allocation of spectrum for maximum efficiency at lower costs to consumers.[536]

236. Other commenters, however, express concern that Google's specific proposal on spectrum management techniques is unclear in many respects and does not provide sufficient detail for Commission evaluation.[537] Some of these commenters also contend that, depending on what Google is proposing, the Commission may either already permit Google and others to use these mechanisms or the Commission has prohibited these practices. Verizon Wireless, for instance, asserts that, to the extent Google seeks confirmation that a licensee is permitted dynamic use of its spectrum, the Commission previously has confirmed this right in the flexible use rules applicable to commercial 700 MHz Band licensees, wherein licensees have the flexibility to reduce noise levels, lower power of their own transmissions, collaborate with equipment vendors to develop new devices, and engage in secondary market transactions to facilitate the shared use of spectrum.[538] Verizon Wireless, AT&T, and CTIA point out that Google's proposal may already be permitted under the Commission's spectrum leasing rules, where licensees and spectrum lessees are permitted to enter into a variety of dynamic forms of spectrum leasing that take advantage of advanced technologies that enable shared use of licensed spectrum, subject to compliance with specified regulatory requirements.[539] Verizon Wireless notes, too, that the Commission permits licensees to establish "private commons" arrangements with spectrum users under specified procedures.[540] In its comments, MetroPCS interprets Google's proposal as a scheme to provide "end user access on an as-needed basis," and contends that, if so, it raises a host of potential legal and regulatory issues in the implementation of that business model that Google fails to address in its proposal.[541] To the extent that Google may be proposing involuntary or unlicensed use of licensed spectrum, Verizon Wireless and CTIA oppose the proposal, stating that this concept recently was rejected by the Commission in its "Interference Temperature" proceeding.[542] To the extent dynamic spectrum

[536] *See, e.g.*, Frontline *Google Ex Parte* Comments at 5-6; Wireless Founders Coalition for Innovation *Google Ex Parte* Comments at 4; CCIA *Google Ex Parte* Comments at 3-4.

[537] Verizon Wireless *Google Ex Parte* Comments at 2; CTIA *Google Ex Parte* Comments at 6; AT&T *Google Ex Parte* Comments at 3-6; MetroPCS *Google Ex Parte* Comments at 5, 10.

[538] Verizon Wireless *Google Ex Parte* Comments at 2-4.

[539] Verizon Wireless *Google Ex Parte* Comments at 3-4; AT&T *Google Ex Parte* Comments at 4-5 (noting statutory obligations such as foreign ownership and control limitations and compliance with CALEA, as well as other requirements under the secondary markets rules); CTIA *Google Ex Parte* Comments at 6-8 (expressing concerns that dynamic auctions could make it difficult to determine whether spectrum users were in compliance with Title II obligations, cripple enforcement against parties causing out of band harmful interference, and allow evasion of various license qualification requirements).

[540] Verizon Wireless *Google Ex Parte* Comments at 3-4.

[541] MetroPCS *Google Ex Parte* Comments at 2, 5-9. MetroPCS interprets Google's dynamic auction mechanisms as "contemplat[ing] demand-based pricing in which consumers will be charged different prices." *Id.* at 5. MetroPCS notes that such discriminatory pricing would be forbidden to common carriers, raising a classification issue. *Id.* at 8-9. In the view of MetroPCS, these ambiguities foreclose Google from receiving the relief it seeks. *Id.* at 8-10. Moreover, MetroPCS argues that Google is in effect petitioning for a declaratory ruling without shouldering a proponent's burdens: nowhere does Google demonstrate how its proposals comport with the core legal requirements, such as those relating to Title II obligations, and other Commission rules. MetroPCS therefore concludes that it would be premature to consider Google's request. *Id.* at 9-10. In its reply comments, Google contends that MetroPCS's objections are "peripheral speculations." *See* Google *Google Ex Parte* Reply Comments at 5-6.

[542] Verizon Wireless *Google Ex Parte* Comments at 2-4.

management techniques that Google discusses would be applied to commercial spectrum shared with public safety users, such as under the Frontline proposal, NPSTC and NENA express concerns that critical public safety standards and operations not be undermined.[543]

237. Vanu comments that, as a general matter, it supports any rulemakings that can contribute to the goal of making spectrum a more accessible commodity, including, but not limited to, the concept of dynamic spectrum auctions.[544] Vanu asserts that the key to making dynamic spectrum access work is having a single local mechanism for coordinating the real-time spectrum access, and emphasizes that, at this time, the licensee must exercise some form of centralized control, from a frequency planning and interference protection perspective, to ensure compliance with the Commission's existing rules.[545] Vanu asks that the Commission grant licensees "the right to offer their spectrum to short term lessees in dynamic auction proceedings" under the following conditions: the spectrum licensee retains ultimate responsibility for compliance with Commission rules; the spectrum licensee is responsible for administering a system that can be shown to cause mobile devices attached to the licensee's network to comply with FCC regulations within the licensee's coverage area; and the spectrum licensee must demonstrate mechanisms by which devices capable of operating in the dynamic spectrum access environment can be temporarily or permanently removed from dynamic spectrum access mode via centralized control.[546]

238. In Google's reply to these comments, Google states that it is not asking for the Commission "to attempt to peer into the future and assess what specific business models and technologies should be encouraged, or even allowed," and instead is indicating that "the concept of dynamic spectrum management potentially covers many different technologies and commercial models, many of which have not been invented."[547] Google states that, as an example, its proposal contemplates that the end-users could gain temporary access to the licensed spectrum through these management techniques much as cellphone subscribers do today.[548] With regard to NPSTC's and NENA's concerns about protecting public safety spectrum, Google states that it does not intend its proposals to suggest placing mandatory conditions on 700 MHz Band spectrum assigned for public safety use.[549]

239. As for whether the Commission should mandate the use of "dynamic spectrum management techniques" in some or all of the 700 MHz Band, the majority of commenters object to any such requirement.[550] These commenters argue that, irrespective of whether Google's proposed uses are permissible under the Commission's rules, mandating licensees to employ particular spectrum management techniques, such as one that Google uses for its own business model with regard to such uses or reserving any portion of the commercial 700 MHz spectrum for the exclusive use of parties seeking to implement any type of dynamic spectrum management business plan would run counter to the

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[543] NPSTC *Google Ex Parte* Comments at 3-5; NENA *Google Ex Parte* Reply Comments at 4-5.

[544] Vanu *Google Ex Parte* Comments at 2.

[545] Vanu *Google Ex Parte* Comments at 3-4.

[546] Vanu *Google Ex Parte* Comments at 4-5.

[547] Google *Google Ex Parte* Reply Comments at 4.

[548] Google *Google Ex Parte* Reply Comments at 4.

[549] Google *Google Ex Parte* Reply Comments at 9-10.

[550] *See, e.g.*, AT&T *Google Ex Parte* Comments at 8-11; CTIA *Google Ex Parte* Comments at 3; MetroPCS *Google Ex Parte* Comments at 9; NENA *Google Ex Parte* Reply Comments at 3-5 (opposing use in public safety-related spectrum); NPTSTC *Google Ex Parte* Comments at 4 (same); RTG *Google Ex Parte* Comments at 2; Qualcomm *Google Ex Parte* Comments at 3; Qualcomm *Google Ex Parte* Reply Comments at 3; Verizon Wireless *Google Ex Parte* Comments at 4-5.

Commission pro-competitive, technology neutral, and flexible use policies. AT&T and Qualcomm contend that the Commission's market-driven policies have worked over the last 15 years to encourage the highly competitive wireless environment of today and that mandating or restricting uses would run counter to that effective policy.[551] Several commenters express doubts about whether it is currently technically feasible to conduct dynamic spectrum auctions as proposed by Google.[552]

240. Commenters supporting such a requirement generally focus on mandating such mechanisms specifically on the commercial spectrum block designated for the public-private partnership, in the event the Commission was to establish such a partnership. For example, Frontline proposes that such a partnership licensee be required to "implement promptly" such an open auction mechanism. In particular, Frontline argues, the licensee should be required to dedicate at least 25% of the public-private partnership commercial license to real-time auctions for three years, with annual written reports to be submitted to the Commission along the lines required of experimental licensees.[553] CCIA supports Google's proposal as necessary to generate sufficient revenue to build a nationwide broadband network.[554]

241. Discussion. In response to Google's first request, we affirm that nothing in the Commission's rules generally prohibits 700 MHz licensees from using dynamic spectrum management practices. Dynamic spectrum management techniques, such as those contemplated in Google proposals, appear to be in accord with the Commission's flexible use policies and secondary market mechanisms, which provide licensees with significant flexibility in managing access and use of the licensed spectrum in a dynamic and efficient manner consistent with the rights given to, and obligations imposed on, licensees under the Communications Act and our rules. Based on the current record, of course, we cannot address any particular manner in which a licensee might implement any such practice, and whether any of our specific rules, such as our technical and equipment rules, would need to be modified. In response to Google's second suggestion, we decline to mandate the use of dynamic spectrum management practices for 700 MHz Band licensees.

242. In adopting flexible spectrum use policies for the commercial spectrum in the 700 MHz Band, and in establishing policies and rules that facilitate the development of secondary markets in spectrum usage rights, the Commission has sought to remove regulatory impediments in order to enable more efficient use of licensed spectrum.[555] Under existing rules, 700 MHz Band licensees have wide

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[551] Qualcomm *700 MHz Further Notice* Reply Comments at 2; Qualcomm *Google Ex Parte* Comments at 6-8; AT&T *Google Ex Parte* Comments at 8 (mandating rules designed to promote particular technologies or services is inconsistent with the Commission's long-standing policies of maintaining technical and service neutrality in its rules and allowing flexible spectrum use by licensees).

[552] MetroPCS *Google Ex Parte* Comments at 10 and n.25 (indicating that dynamic auctions may be 5 or 10 years away); Vanu *Google Ex Parte* Comments at 3-4 (noting that "it is not yet technically feasible for a wireless device to calculate interference temperature in a meaningful way"); NPSTC *Google Ex Parte* Comments at 9-10 (no sensing technologies yet exist able to meet acceptable public safety standards).

[553] Frontline *700 MHz Further Notice* Comments at 23-24.

[554] CCIA *Google Ex Parte* Comments at 1 (sharing risk and investment up front and over time would help to finance actual construction costs and facilitate entry of new licensees).

[555] *See Upper 700 MHz First Report and Order*, 15 FCC Rcd at 483-487 ¶¶ 15-25; *Lower 700 MHz Band Report and Order*, 17 FCC Rcd at 1051-52 ¶¶ 70-71; Order Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, WT Docket 00-230, *Report and Order and Further Notice of Proposed Rulemaking*, 18 FCC Rcd 20604 (2003) (*Secondary Markets First Report and Order*) (applying secondary market spectrum leasing rules to commercial 700 MHz Band services); *Erratum*, 18 FCC Rcd 24817 (2003); *Second Report and Order, Order on Reconsideration, and Second Further Notice of Proposed Rulemaking*, 19 FCC Rcd 17503 (2004) (*Secondary Markets Second Report and Order*); *Third Report and Order*, 22 FCC Rcd 7209 (April 11, (continued....)

latitude to adopt and implement spectrum management techniques to manage access to and use of their spectrum, so long as they are consistent with the Commission's rules relating to the spectrum and the prevention of harmful interference. As a matter of practice, licensees continually devise and update the types of advanced devices they deploy, and improve the management of the dynamic spectrum use between and among their subscribers, consistent with the applicable service rules and their respective business models. Further, as Google notes, the concept of dynamic spectrum management potentially covers many different technologies and commercial models, many of which have not been invented.[556]

243. In the Commission's Secondary Markets proceeding, the Commission has taken several actions to enable more dynamic access and use of spectrum by licensees and other spectrum users, facilitating spectrum use across various dimensions (frequency, space, and time) and spectrum access employing advanced technologies.[557] In the *Secondary Markets Second Report and Order*, the Commission took specific steps, which apply to the 700 MHz Band, to facilitate the development of spectrum usage arrangements that employ advanced technologies that can more efficiently share use of licensed spectrum.[558] In particular, the Commission clarified that licensees and spectrum lessees may enter into a wide variety of dynamic spectrum leasing arrangements that enable users to share use of the licensed spectrum based on the particular parameter and arrangements that the licensee and spectrum lessee(s) have agreed upon.[559]

244. As the Commission explained, a licensee and spectrum lessee may, under existing rules, enter into dynamic spectrum leasing arrangement in which use of the same spectrum is shared between both the licensee's and spectrum lessee's users by employing opportunistic devices. In another variation, a licensee could enter into a spectrum leasing arrangement that gives one spectrum lessee access to the spectrum on a priority basis, while also leasing use of the same spectrum to another spectrum lessee on a lower-priority basis, with the requirement that the lower-priority spectrum lessee employ certain opportunistic technology to avoid interfering with the priority spectrum lessee. The flexibility provided under our dynamic spectrum leasing rules permits arrangements that could facilitate opportunistic use by parties operating at the same power level and under similar technical parameters as the licensee, or they could promote such use at lower power levels.[560] In another secondary markets arrangement permitted under our rules, licensees and spectrum lessees may, under certain specified conditions, make spectrum available to individual users or groups of users through "private commons" arrangements that do not fit squarely within the traditional end-user arrangements associated with the licensee's (or spectrum lessee's) subscriber-based services and network infrastructures or under the secondary markets spectrum leasing

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2007) (*Secondary Markets Third Report and Order*); *see also* 47 C.F.R. §§ 27.2 (Part 27 rules applicable to commercial 700 MHz Band services), §§ 1.9001 *et seq.* (Subpart X rules concerning "Spectrum Leasing").

[556] Google *Google Ex Parte* Reply Comments at 4.

[557] *See Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, WT Docket 00-230, *Report and Order and Further Notice of Proposed Rulemaking*, 18 FCC Rcd 20604 (2003) *Secondary Markets First Report and Order*); *Erratum*, 18 FCC Rcd 24817 (2003); *Second Report and Order, Order on Reconsideration, and Second Further Notice of Proposed Rulemaking*, 19 FCC Rcd 17503 (2004) (*Secondary Markets Second Report and Order*); *Third Report and Order*, 22 FCC Rcd 7209 (April 11, 2007) (*Secondary Markets Third Report and Order*); *see also* 47 C.F.R. §§ 1.9001 *et seq.* (Subpart X rules concerning "Spectrum Leasing").

[558] *Secondary Markets Second Report and Order*, 19 FCC Rcd at 17545-54 ¶¶ 85-99.

[559] *Secondary Markets Second Report and Order*, 19 FCC Rcd at 17546-48 ¶¶ 88-90 (explaining that "a variety of dynamic forms of spectrum leasing arrangements" are permitted, and providing a number of illustrative, but non-exhaustive, examples of permissible dynamic forms of spectrum leasing utilizing advanced technologies).

[560] *Secondary Markets Second Report and Order*, 19 FCC Rcd at 17547-48 ¶¶ 88-89.

policies and rules.[561]

245. These secondary market policies and rules are intended to facilitate the use of advanced technologies, including "smart" or "opportunistic" devices, that have the potential to increase access and use of unused licensed spectrum.[562] Although the Commission has not endeavored to provide an exhaustive list of all the possible arrangements that could involve the use of opportunistic devices and the management of spectrum sharing among users, the Commission's existing rules provide significant flexibility to licensees and spectrum lessees to take advantage of advanced technologies in the access to and sharing of spectrum use, pursuant to the terms and conditions that licensees and spectrum lessees establish, so long as they fall within the licensee's spectrum usage rights under the license authorization and are not inconsistent with applicable technical and other regulations imposed by the Commission to prevent harmful interference to other licensees.[563]

246. Based on the current record, of course, we cannot address any particular manner in which a licensee might seek to implement any of the types of dynamic spectrum management techniques suggested by Google, and whether any of our specific rules, such as our technical and equipment rules, would need to be modified in that instance.[564] Indeed, Google is not asking the Commission to assess what specific business models and technologies should be allowed.[565] We also are not addressing any possible regulatory classification issues that might arise from a licensee's provision of spectrum access using dynamic spectrum management techniques.[566]

247. We will not mandate that licensees employ the particular types of spectrum management mechanisms that Google proposes. Consistent with many commenters on this point, we conclude that licensees should retain significant flexibility with regard to the precise mechanisms they utilize when it comes to managing spectrum access to the network and among users. Mandating any particular dynamic spectrum management mechanism on a licensee may impose unanticipated or unnecessarily burdensome requirements on a particular licensee, including requirements for the network, and the devices deployed on it, that may not be consistent or appropriate for that licensee's business model. Of course, to the extent any licensee believes that the specific spectrum management mechanisms that Google proposes is appropriate or preferable, it is free to choose to utilize these mechanisms, consistent with our guidance above.

248. Finally, we decline to adopt Vanu's request that the Commission establish specific conditions for the particular type of dynamic auction proceedings it proposes. While we agree that licensees (or spectrum lessees) bear the responsibility for ensuring that users and devices using licensed

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[561] *Secondary Markets Second Report and Order*, 19 FCC Rcd at 17549-53 ¶¶ 91-99; *see also Secondary Markets Third Report and Order*, 22 FCC Rcd at 7209-12 ¶¶ 3-9 (discussing rules applicable to "private commons" arrangements).

[562] *Secondary Markets Second Report and Order*, 19 FCC Rcd at 17545-54 ¶¶ 85-99.

[563] *Secondary Markets Second Report and Order*, 19 FCC Rcd at 17546 ¶ 86.

[564] For instance, one possibility Google envisions is that the communications device itself measures and enforces regulatory requirements that the total amount of power being transmitted by all devices in any location be limited to a specified cap. *Google Ex Parte* at 3. Based on the current record, we do not consider whether there would need to be any changes to our technical rules or equipment authorization rules for a licensee to implement that specific suggestion.

[565] Google *Google Ex Parte* Reply Comments at 4.

[566] MetroPCS *Google Ex Parte* Comments at 8-9.

spectrum comply with the rules that apply to the particular spectrum in which they operate,[567] we are in no position, based on the record before us, to make any specific determination by rule in this proceeding along the lines that Vanu proposes.

(v) Protection of 700 MHz Public Safety Operations

249. Background. The initial rules for the Upper 700 MHz Band were adopted in part to ensure that appropriate interference protection was provided to 700 MHz public safety operations. Specifically, the Commission adopted strict out-of-band emission (OOBE) limits for C and D Block licensees – *i.e.*, requiring C and D Block base stations and mobiles/portables to attenuate their emissions by 76 + 10log P and 65 + 10logP, respectively, into a 6.25 kHz bandwidth within the public safety bands. In addition, the Commission placed guard bands between the public safety bands and the C and D Blocks to prevent C and D Block transmissions from causing receiver overload interference to public safety operations and required guard band licensees to coordinate with public safety entities to minimize the likelihood of such interference.[568] In adopting our new band plan for the 700 MHz Band, we must take all necessary steps to ensure continued protection of the public safety bands from C and D Block transmissions.

250. Discussion. We shall continue to require Upper 700 MHz Band C Block licensees to meet the 76 + 10 log P and 65 + 10 log P OOBE limits with respect to the public safety bands. Both Alcatel-Lucent and Ericsson suggest that we adopt the less stringent 43 + 10 log P OOBE limit to protect the public safety broadband block from commercial broadband transmissions.[569] However, we agree with Motorola that the possible use of similar architectures by public safety and commercial broadband systems will not ensure interference protection to public safety broadband operations.[570] Furthermore, given the steps the Commission has taken to provide increased protection to 700 MHz public safety operations, we do not believe that the 43 + 10 logP OOBE limit, used to prevent 700 MHz commercial broadband systems from interfering with one another, should be employed as the out-of-band emission limit to protect 700 MHz public safety broadband systems from interference. We shall therefore retain the existing 76 + 10 log P and 65 + 10 log P OOBE limit for C Block licensees.

251. We will not require the Upper 700 MHz Band D Block licensee, however, to meet OOBE limits with respect to the public safety broadband spectrum. We reach this conclusion because the D Block licensee, through the 700 MHz Public/Private Partnership, will operate on adjacent spectrum and use the same infrastructure as the public safety broadband licensee, and meeting OOBE was a measure designed to protect public safety operations from interference from unaffiliated commercial systems. The D Block licensee will still, however, be required to satisfy the 76 and 65 + 10 log P OOBE limits with

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[567] *See, e.g., Secondary Markets Second Report and Order*, 19 FCC Rcd at 17547-54 ¶¶ 88-99 (providing guidance for licensees and spectrum lessees who provide dynamic spectrum access to their networks through secondary market mechanisms); *Secondary Markets Third Report and Order*, 22 FCC Rcd 7209 (providing additional guidance).

[568] Guard band licensees were also restricted from employing systems with cellular architectures to minimize the frequency coordination activities that would be required of public safety licensees.

[569] Alcatel-Lucent argues that "with the likelihood that similar architectures will be deployed in the commercial and public safety spectrum, the potential for commercial broadband interference into the adjacent public safety spectrum is significantly reduced." Alcatel-Lucent *700 MHz Further Notice* Comments at 19-20; *see also* Ericsson *700 MHz Further Notice* Comments at 29-30.

[570] Motorola states that "[i]n adopting the existing standard, the Commission recognized the inadequacy of the commercial standard 43 +10log P to adequately protect public safety. Ignoring this fact and subjecting public safety receivers to higher interference risks requires more consideration than a simple expectation that system architectures may be similar." Motorola *700 MHz Further Notice* Reply Comments at 11-12.

respect to the narrowband portion of the public safety spectrum. Finally, we shall not require the D Block licensee and Public Safety Broadband Licensee to coordinate with one another to address potential overload interference, even though such licensees will be authorized on adjacent spectrum, because under the public/private partnership, as discussed above, the D Block licensee and Public Safety Broadband Licensee will be sharing the same infrastructure.

(vi) Licensee Eligibility

252. Background. In the *700 MHz Further Notice*, we requested comment on the proposal presented by Media Access Project and PISC to encourage the entry of new competitors by excluding incumbent local exchange carriers (ILECs), incumbent cable operators, and large wireless carriers from eligibility for licenses in the 700 MHz Band.[571] We also sought comment on whether eligibility to hold one or more blocks of the Upper 700 MHz C Block spectrum should be limited to parties not affiliated with existing wireline broadband service providers, including both DSL and cable providers, or, alternatively, limited to parties not affiliated with in-region wireline broadband service providers.[572]

253. In all but one of the proceedings in which the Commission considered eligibility restrictions for licenses in recent years, it has imposed such restrictions only when open eligibility would pose a significant likelihood of substantial competitive harm in specific markets and when eligibility restrictions were an effective way to address the harm.[573] This standard considers factors beyond market power, such as economic incentives, entry barriers, and potential competition.[574]

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[571] *700 MHz Report and Order*, 22 FCC Rcd at 8143-44 ¶ 221.

[572] *700 MHz Report and Order*, 22 FCC Rcd at 8144 ¶ 221.

[573] *See, e.g.*, Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands, *Report and Order and Further Notice of Proposed Rulemaking*, 19 FCC Rcd 14165, 14227-32 ¶¶ 165-76 (2004) (finding that parties favoring restricting eligibility of cable operators and ILECs to acquire BRS/EBS licenses for the provision of non-video services had not shown that eligibility of such service providers is likely to result in substantial competitive harm or that, even if specific markets experienced harm to competition, the eligibility restrictions advocated would be effective in eliminating that harm), *Third Memorandum Opinion and Order*, 21 FCC Rcd 5606, 5701-02 ¶¶ 229-31 (2006); Allocations and Service Rules for the 71-76 GHz, 81-86 GHz and 92-95 GHz Bands, *Report and Order*, 18 FCC Rcd 23318, 23345-47, ¶¶ 68-70 (2003) (finding no significant likelihood of competitive harm in any markets and therefore declining to impose eligibility restrictions); Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range, Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates, and Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, Ltd. to Provide A Fixed Service in the 12.2-12.7 GHz Band, *Memorandum Opinion and Order and Second Report and Order*, 17 FCC Rcd 9614, 9677-82, ¶¶ 159-70 (2002) (concluding that open eligibility for MVDDS licenses for DBS service providers and distributors will not result in substantial competitive harm but that open eligibility for in-region cable operators poses a significant likelihood of substantial competitive harm; and therefore prohibiting any cable operator, or any entity owning an attributable interest in a cable operator, from holding an attributable interest in an MVDDS license if such cable operator's service area significantly overlaps the MVDDS license area); Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6 -40.0 GHz Bands, Implementation of Section 309(j) of the Communications Act – Competitive Bidding, 37.0-38.6 GHz and 38.6-40.0 GHz, *Report and Order and Second Notice of Proposed Rule Making*, 12 FCC Rcd 18600, 18619-20, ¶¶ 32-35 (1997) (finding it unlikely that substantial anticompetitive effects would result from LEC eligibility); *cf.* Auction of Direct Broadcast Satellite Licenses, 19 FCC Rcd 23849, 23856, 23869-71 (2004) (making DBS incumbents ineligible for two DBS licenses that afford a last opportunity for new entry in the DBS market).

[574] Rulemaking to Amend Parts 1, 2, 21 and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30-0 GHz Frequency Band, to Establish Rules and Policies for Local (continued....)

254. PISC is virtually alone in advocating excluding otherwise qualified applicants from eligibility for 700 MHz Band licenses based on their status as incumbent service providers.[575] PISC argues that the current market for wireless service and broadband is concentrated and that incumbents have little incentive to build a wireless broadband network that would compete directly with their existing wireless or broadband services. In connection with advocating a bidding credit for new entrants as a potential response to these market conditions, PISC notes the difficulty in properly prohibiting relationships between new entrants and parties that should be excluded from receiving a bidding credit.[576] PISC does not propose a definition of all the parties that it believes should be excluded from eligibility. However, in arguing that the Commission should prohibit relationships between new entrants and entities that it asserts have incentives to exclude new competitors, PISC appears to suggest that ILECs, cable operators and large wireless carriers should be ineligible to acquire 700 MHz Band licenses.[577] Frontline also argues that the markets for wireless service and broadband service are concentrated and submits an economic study supporting its contentions.[578] Frontline, however, does not advocate restricting the applicants that may be eligible for licenses. Rather, Frontline proposes, and PISC supports, mandating open access rules to address market concentration.[579] We address potential open access requirements elsewhere. CCIA proposes that, rather than restrict incumbents from eligibility for licenses absolutely, the Commission should mandate that in-region wireline incumbents be permitted to hold licenses only through structurally separate affiliates.[580]

255. A variety of commenters strongly oppose eligibility restrictions for a host of reasons.[581] Opponents contend that the record does not provide data sufficient to meet our standard for imposing an eligibility restriction.[582] Parties argue to the contrary that there is ample and growing competition in wireless broadband.[583] Several parties argue that restricting incumbents would run directly contrary to the Commission's goal of assigning licenses to the parties that value the licenses the most.[584] In many cases,

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Multipoint Distribution Service and for Fixed Satellite Services, *Third Report and Order and Memorandum Opinion and Order*, 15 FCC Rcd 11857, 11861-62 ¶¶ 7-12 (2000) (explaining why this standard, and not the substantial market power test, is the appropriate standard to use in determining whether LMDS eligibility restriction previously imposed on ILECs and cable companies should be allowed to sunset).

[575] PISC *700 MHz Further Notice* Comments at 7-12, 35. *Cf.* AT&T *700 MHz Further Notice* Reply Comments (summarizing comments for and against eligibility restrictions).

[576] PISC *700 MHz Further Notice* Comments at 35.

[577] PISC *700 MHz Further Notice* Comments at 35.

[578] Frontline *700 MHz Further Notice* Comments at 9-16, Ex. 1 at 6-11.

[579] Frontline *700 MHz Further Notice* Comments at 17; PISC *700 MHz Further Notice* Comments at 12.

[580] CCIA *700 MHz Further Notice* Comments at 5.

[581] *See, e.g.*, TIA *700 MHz Further Notice* Comments at 3, 5 and 7; CTIA *700 MHz Further Notice* Comments at 10; RTG *700 MHz Further Notice* Comments at 12; NCTA *700 MHz Further Notice* Comments at 2-3; 700 MHz Independents *700 MHz Further Notice* Comments at 10; MetroPCS *700 MHz Further Notice* Comments at 38; USCC *700 MHz Further Notice* Comments at 21; AT&T *700 MHz Further Notice* Comments at 20; Verizon Wireless *700 MHz Further Notice* Comments at 31; SpectrumCo *700 MHz Further Notice* Comments at 7; Qualcomm *700 MHz Further Notice* Comments at 9-10; Motorola *700 MHz Further Notice* Comments at 35.

[582] CTIA *700 MHz Further Notice* Comments at 11-12; TIA *700 MHz Further Notice* Comments at 6.

[583] NCTA *700 MHz Further Notice* Comments at 4 (citing WiMax and BPL); AT&T *700 MHz Further Notice* Comments at 32-33 (citing WiMax, BPL, and satellite).

[584] NCTA *700 MHz Further Notice* Comments at 3; TIA *700 MHz Further Notice* Comments at 6; WISP *700 MHz Further Notice* Comments at 7; MetroPCS *700 MHz Further Notice* Comments at 43; Qualcomm *700 MHz Further Notice* Comments at 10; Verizon Wireless *700 MHz Further Notice* Comments at 31-32.

certain commenters assert, that party may well be an incumbent service provider, including either a rural provider or a national carrier.[585]

256. Discussion. On the present record, we do not find a significant likelihood of substantial competitive harm in a specific market, and therefore we decline to impose eligibility restrictions for the licenses in the 700 MHz Band. At present, it appears most likely that the commercial non-Guard Band spectrum in the 700 MHz Band will be used for the provision of broadband services. Accordingly, we analyze whether open eligibility would pose a significant likelihood of substantial competitive harm in the broadband services market. The record does not demonstrate that open eligibility is likely to result in substantial competitive harm in the provision of broadband services. First, there are numerous actual and potential broadband service providers. Currently, consumers can obtain broadband service from wireline providers, cable companies, satellite, and wireless providers, including Wireless Internet Service Providers (WISPs) that use unlicensed spectrum.[586] While ILECs and incumbent cable operators may lead in the provision of broadband internet access at the present, new entrants wishing to offer wireless broadband internet access have numerous potential platforms to use for a wireless "third pipe," both among different 700 MHz Band blocks and among other wireless bands. There is potential for additional entry into the broadband market by carriers operating on spectrum in the Wireless Communications Services (WCS), Advanced Wireless Service (AWS), Broadband Radio Service (BRS), and 3650-3700 MHz bands.[587] Further, the Commission has facilitated deployment of broadband service to be offered over electric lines.[588] Satellite, wireless, and broadband over power lines (BPL) have been used to provide broadband services on a widespread basis for a relatively short period of time, and the number of high speed lines deployed by these technologies has increased substantially.[589] Between June 2005 and

[585] Blooston *700 MHz Further Notice* Comments at 5-6; Frontier *700 MHz Further Notice* Comments at 13; CTIA *700 MHz Further Notice* Comments at 17.

[586] Satellite broadband providers include WildBlue and Hughes. *See* http://www.wildblue.com/ http://www.hughes.com/HUGHES/Rooms/DisplayPages/LayoutInitial?pageid=HNS_home&Container=com.webridge.entity.Entity[OID[48D310485DF714449F65AAD3E8CE2313]] (last visited May 18, 2007). Wireless providers include not only the large national mobile telephony providers (Verizon Wireless, AT&T Mobility, Sprint Nextel, and T-Mobile) but also smaller regional mobile telephony providers such as Alltel and USCC. Further, there are various other wireless Internet service providers such as Clearwire, as well as Wi-Fi (hot spot) providers. *See* Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, WT Docket No. 06-17, *Eleventh Report*, 21 FCC Rcd 10947, 10961-62 ¶ 30-32, 10993 ¶ 112 (2006) (*Eleventh Competition Report*); http://easyedge.uscc.com/easyedge/Home.do.

[587] *See* "FCC's Advanced Wireless Services (AWS) Spectrum Auction Concludes," News Release (rel. Sept. 18, 2006), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-267467A1.doc (last visited May 18, 2007); Consolidated Request of the WCS Coalition for Limited Waiver of Construction Deadline for 132 WCS Licenses, Request of WCS Wireless, LLC for Limited Waiver of Construction Deadline for 16 WCS Licenses, Request of Cellutec, Inc. for Limited Waiver of Construction Deadlines for stations KNLB242 and KNLB216 in Guam/Northern Mariana and American Samoa, WT Docket No. 06-102, *Order*, 21 FCC Rcd 14134, 14140-41 ¶ 12 (2006); Wireless Operations in the 3650-3700 Band, ET Docket No. 04-151, *Report and Order and Memorandum Opinion and Order*, 20 FCC Rcd 6502 (2005).

[588] *See* Amendment of Part 15 Regarding New Requirements and Measurement Guidelines for Access Broadband over Power Line Systems, Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 04-37, *Memorandum Report and Order*, 21 FCC Rcd 10413 (2006); Amendment of Part 15 Regarding New Requirements and Measurement Guidelines for Access Broadband over Power Line Systems, Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 04-37, *Report and Order*, 19 FCC Rcd 21265 (2004).

[589] Industry Analysis and Technology Division, Wireline Competition Bureau, "High-Speed Services for Internet Access: Status as of June 2006," January 2007 at Table 1.

June 2006 the number of high speed lines offered by satellite, wireless, and BPL technologies increased by over 1,000 percent, and as of June 2006 reflect approximately 18 percent of all high speed lines.[590] Given the number of actual wireless providers and potential broadband competitors, it is unlikely that ILECs, cable providers, or large wireless carriers would be able to behave in an anticompetitive manner as a result of any potential acquisition of 700 MHz spectrum. Moreover, existing competition, such as that between ILECs and cable providers with respect to broadband internet access services, limits any one party's incentives to attempt unilaterally to block new entrants from acquiring 700 MHz spectrum. Absent a monopoly on broadband service, an incumbent attempting to block new entrants would bear all the costs of doing so, while other incumbents would capture much of the gain.

257. Also, we find that the revised band plan for the 700 MHz Band and the associated buildout rules will help discourage foreclosure in the market. First, this spectrum is being auctioned in five spectrum blocks ranging in size from a 6-megahertz unpaired block to a 22-megahertz block (comprised of paired 11-megahertz blocks) and over various geographic market sizes ranging in size from CMAs to REAGs. Given the number and diversity of available licenses, it is unlikely that any ILEC, cable company, or large wireless carrier would be able to acquire enough spectrum to foreclose the broadband market to potential competitors, even if it should attempt to do so. Second, the build out requirements adopted in this Second Report and Order will help prevent warehousing, requiring auction winners to bear the cost of providing service, in addition to the cost of acquiring licenses, in order to prevent entry by potential competitors.

258. There are potential competitive benefits to not imposing the proposed eligibility requirement. Allowing ILECs and cable companies to hold 700 MHz Band licenses would provide opportunities for these carriers to extend their services to rural and hard-to-serve areas where transmission by cable or wire may be prohibitively expensive. Also, as reflected by many comments, the proposed eligibility restriction would create impediments to small and rural carrier acquisition of spectrum and deployment of broadband services.[591] These carriers may have limited access to capital, and the proposed eligibility restriction would prevent the formation of alliances, partnerships, and joint ventures that could provide these firms with needed capital.

259. We also note that restricting eligibility for licenses without adequate justification could harm the public interest. The use of competitive bidding to assign licenses, such as the commercial 700 MHz licenses, serves the public interest by assigning licenses to the parties that value the licenses the most. Such parties are presumed to be most likely to put the public spectrum resource to its most effective use.[592] If, however, we exclude categories of potential licensees, we risk reducing the likelihood that the party valuing the license the most will win the license and put it to use for the benefit of the public. This unavoidable uncertainty in assessing prospective competitive harms is heightened here by the substantial spectrum capacity being made available and the uncertainty regarding how that spectrum capacity ultimately will be used.

b. 700 MHz Guard Bands

(i) Treatment of Reconfigured A Block

260. Background. In setting forth the rules governing the Upper 700 MHz Band, the

[590] Industry Analysis and Technology Division, Wireline Competition Bureau, "High-Speed Services for Internet Access: Status as of June 2006," January 2007 at Table 1.

[591] *See, e.g.*, Blooston *700 MHz Further Notice* Comments at 5-6; RTG *700 MHz Further Notice Comments* at 13; 700 MHz Independents *700 MHz Further Notice* Comments at 9-11.

[592] *See* Implementation of Section 309(j) of the Communications Act – Competitive Bidding, *Second Report and Order*, 9 FCC Rcd 2348, 2349-50 ¶¶ 3-7 (1994).